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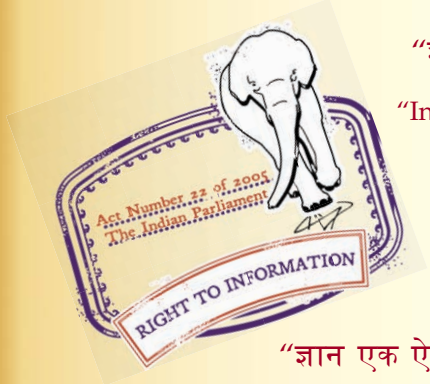

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Indian Standard
SPECIFICATION FOR *MAIDA* FOR GENERAL PURPOSES
(Second Revision)

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SPECIFICATION FOR *MAIDA* FOR GENERAL PURPOSES

(Second Revision)

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AMENDMENT NO. 1 MARCH 1989
TO
IS : 1009 - 1979 SPECIFICATION FOR *MAIDA* FOR GENERAL PURPOSES

(Second Revision)

(*Cover page, pages* 1 *and* 3, *title*) — Substitute the following for the existing title:

'*Indian Standard*

SPECIFICATION FOR WHEAT FLOUR (*MAIDA*) FOR GENERAL PURPOSES'

(AFDC 32)

Printed at Simco Printing Press, Delhi, India

AMENDMENT NO. 2 DECEMBER 1995
TO
IS 1009 : 1979 SPECIFICATION FOR *MAIDA* FOR GENERAL PURPOSES

(Second Revision)

(*Page* 11, *clause* E-3.1) – Substitute '$\frac{0.904\,AN}{M}$' *for* '$\frac{24.52\,AN}{M}$'.

(FAD 16)

Reprography Unit, BIS, New Delhi, India

Indian Standard

SPECIFICATION FOR *MAIDA* FOR GENERAL PURPOSES

(Second Revision)

0. FOREWORD

0.1 This Indian Standard (Second Revision) was adopted by the Indian Standards Institution on 29 June 1979, after the draft finalized by the Foodgrains and Foodgrain Products Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 *MAIDA* (wheat flour) is used in making bread, different types of biscuits, pastries and a number of other products. In India, its largest use is in the domestic sphere and in the preparation of Indian sweetmeats. It is manufactured in roller flour mills. The quality of *MAIDA* depends largely on the type of wheat as well as milling technique.

0.3 This standard was first published in 1957 and subsequently revised in 1968. In the original version (1957) two grades of *MAIDA* were prescribed. However, during revision, the need was felt to have three grades, based on the gluten content and these were incorporated. The limit for gluten content had been lowered and requirements for crude fibre and acidity have been deleted. The limits for total ash and alcoholic acidity were also revised. Besides, as the compulsory washing of wheat before milling, was introduced in the country, the limit for moisture content had been raised. In the second revision a requirement for the maximum uric acid has been included.

0.3.1 Further separate standards have been brought out for wheat flour for use by bread industry (IS : 7464-1974) and wheat flour for use by biscuit industry (IS : 7463-1974). A separate standard IS : 9194-1979 wheat flour for use in cake industry is also being brought out simultaneously. Therefore in the present standard the different grades have been deleted and only one set of requirement has been prescribed specifying minimum 7·5 percent gluten content

0.4 The Sectional Committee responsible for the preparation of this standard took into consideration the available data on the composition of *MAIDA* manufactured from different varieties of wheat produced in various parts of India. In addition to this, due consideration has also been given to the relevant rules prescribed by the Government of India under the Prevention of Food Adulteration Act, 1954 and to the

Standards of Weights and Measures (Packaged Commodities) Rules, 1977. However, wherever applicable, this standard is subject to the restriction imposed under these regulations.

0.5 This standard contains clauses **4.1.1** and **4.1.2** which call for an agreement between the purchaser and the vendor.

0.6 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for *MAIDA* for general purposes.

2. TERMINOLOGY

2.1 For the purpose of this standard, *MAIDA* for general purposes shall mean the product obtained by milling cleaned, hard or soft wheat or blends thereof in a roller flour mill and bolting, and conforming to the requirements specified under **3.**

3. REQUIREMENTS

3.1 Description — The material shall be free-flowing, dry to the touch and should not pack when squeezed. The material shall also be creamy in colour and free from any visible bran particles. The material shall have a characteristic taste and smell and shall be free from insect and fungus infestation, rodent contamination, dirt and other extraneous matter.

NOTE — The appearance, taste and odour shall be determined by organoleptic tests.

3.2 Microscopic Appearance — When the material is subjected to micsoscopic examination, starch granules shall have the characteristic appearance as shown in photomicrograph reproduced in Fig. 1, revealing concentric rings and more small granules than large ones, their size varying between 5 to 50 μm in diameter.

3.3 The material shall also comply with the requirements given in Table 1.

*Rules for rounding off numerical values (*revised*).

FIG. 1 PHOTOMICROGRAPH OF *MAIDA* STARCH (× 325)

(Scale : 1 Division = 10 microns)

4. PACKING AND MARKING

4.1 Packing — The packages may preferably be of 100 g, 200 g, 500 g, 1 kg, 2 kg, 5 kg and thereafter in multiples of 5 kg as desired by the purchaser.

TABLE 1 REQUIREMENTS FOR *MAIDA*

(*Clause* 3.3)

Sl No.	Characteristic	Requirement	Method of Test, Ref to	
			Appendix	Other Standard
(1)	(2)	(3)	(4)	(5)
i)	Moisture, percent by mass, *Max*	13·0	A	—
ii)	Total ash (on dry basis), percent by mass, *Max*	0·7	B	—
iii)	Acid insoluble ash (on dry basis), percent by mass, *Max*	0·05	C	—
iv)	Gluten (on dry basis), percent by mass, *Min*	7·5	D	—
v)	Alcoholic acidity (as H_2SO_4) in 90 percent alcohol, percent by mass, *Max*	0·1	E	—
vi)	Granularity	To satisfy the test	F	—
vii)	Uric acid, mg/100 g, *Max*	10	—	IS : 4333 (Part V)-1970*

*Methods of analysis for foodgrains: Part V Determination of uric acid.

4.1.1 For packages above 65 kg, unless otherwise agreed to between the purchaser and the vendor, the material for packing shall be single, sound A-twill or B-twill jute bags or DW-flour bags conforming to IS : 1943-1964*, IS : 2566-1965† and IS : 3984-1967‡ respectively.

4.1.2 The bags used for smaller packs may be polyethylene bags or polyethylene lined jute bags or any other suitable material as agreed to between the purchaser and the vendor.

4.1.3 The mouth of the bags shall be either machine stitched or hand stitched. If they are hand stitched, the mouth shall be rolled over and then stitched. The stitches shall be in two cross-rows with at least 14 stitches in each row for jute bags of 65 kg and above.

*Specification for A-twill jute bags (*revised*).
†Specification for B-twill jute bags (*revised*).
‡Specification for DW-flour bags.

4.2 Marking — Each bag shall be suitably marked so as to give the following information:

a) Name of the material;

b) Month of manufacture;

c) Name and address of the manufacturer;

d) Batch or code number;

e) Net mass; and

f) Other labelling requirements according to the provisions of the Standards of Weights and Measures (Packaged Commodities) Rules, 1977.

4.2.1 All markings shall be applied on the bags in such a manner that the dye or ink does not penetrate into the material.

4.2.2 Each bag may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

5. SAMPLING

5.1 The method of drawing representative samples of the material and the criteria for conformity shall be as prescribed in IS : 5315-1978*.

6. TESTS

6.1 Tests shall be carried out as prescribed under **3.1**, **3.2** and in the appropriate appendices referred to in col 4 and 5 of Table 1.

6.2 Quality of Reagents — Unless specified otherwise, pure chemicals shall be employed in tests and distilled water (*see* IS : 1070-1977†) shall be used where the use of water as a reagent is intended

NOTE — ' Pure chemicals ' shall mean chemicals that do not contain impurities which affect the results of analysis.

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*Methods of sampling for milled cereals and pulses products (*first revision*).
†Specification for water for general laboratory use (*second revision*).

APPENDIX A

[*Table* 1, *Item* (i)]

DETERMINATION OF MOISTURE CONTENT

A-1. PROCEDURE

A-1.1 Weigh accurately about 10 g of the material in a suitable moisture dish, previously dried in an electric oven and weighed. Place the dish in an electric oven maintained at 130 to 133°C for 90 minutes. Cool the dish in a desiccator and weigh with the lid on. Repeat the process of heating, cooling and weighing at half-hour intervals until the loss in mass between two successive weighings is less than 1 mg. Record the lowest mass obtained. Preserve the dish containing this dried material in a desiccator for the determination of total ash (*see* **B-1.1**).

A-2. CALCULATION

A-2.1 Moisture, percent by mass $= \frac{100 (M_1 - M_2)}{M_1 - M}$

where

M_1 = mass in g of the moisture dish with the material before drying;

M_2 = mass in g of the moisture dish with the material after drying; and

M = mass in g of the empty moisture dish.

APPENDIX B

[*Table* 1, *Item* (ii)]

DETERMINATION OF TOTAL ASH

B-1. PROCEDURE

B-1.1 Weigh accurately about 5 g of the preserved material (*see* **A-1.1**) in a tared, clean and dry porcelain or silica dish. Ignite the material in the dish with the flame of a suitable burner for about 1 hour. Complete the ignition by keeping in a muffle furnace at 550 ± 10°C until grey ash results. Cool in a desiccator and weigh. Repeat the process of igniting, cooling and weighing at half-hour intervals until the difference between two successive weighings is less than 1 mg. Note the lowest mass. Preserve this ash for the determination of acid insoluble ash (*see* **C-2.1**).

B-2. CALCULATION

B-2.1 Total ash (on dry basis), percent by mass $= \frac{100 (M_2 - M)}{M_1 - M}$

where

M_2 = mass in g of the dish with the ash;

M = mass in g of the empty dish; and

M_1 = mass in g of the dish with the dried material taken for the test.

APPENDIX C

[*Table* 1, *Item* (iii)]

DETERMINATION OF ACID INSOLUBLE ASH

C-1. REAGENT

C-1.1 Dilute Hydrochloric Acid — approximately 5 N, prepared from concentrated hydrochloric acid.

C-2. PROCEDURE

C-2.1 To the ash contained in the porcelain or silica dish (**B-1.1**) add 25 ml of dilute hydrochloric acid, cover with a watch-glass and heat on a water-bath for 10 minutes. Allow to cool and filter the contents of the dish through Whatman filter paper No. 42 or its equivalent. Wash the filter with water until the washings are free from the acid. Return the filter and the residue to the dish. Keep it in an electric air-oven maintained at 130 to 133°C for about 3 hours. Ignite in a muffle furance at about 550 $\pm$ 10°C for one hour. Cool the dish in a deisccator and weigh. Repeat the process of igniting in the muffle furnace, cooling and weighing at half-hour interval until the difference between two successive weighings is less than 1 mg. Note the lowest mass.

C-3. CALCULATION

C-3.1 Acid insoluble ash (on dry basis), percent by mass $= \frac{100 (M_2 - M)}{M_1 - M}$

where

M_2 = mass in g of the dish with the acid insoluble ash;

M = mass in g of the empty dish; and

M_1 = mass in g of the dish with the dried material taken for the determination of total ash (*see* **B-1.1**).

APPENDIX D

[*Table* 1, *Item* (iv)]

DETERMINATION OF GLUTEN

D-1. PROCEDURE

D-1.1 Weigh accurately into a dish about 25 g of the material. Add about 15 ml of water to the material and make it into a dough, taking care to see that all the material is taken into the dough. Keep the dough gently in a beaker filled with water and let it stand for 1 hour. Remove the dough and place it in a piece of bolting silk cloth with an aperture of 0·16 mm size (No. 10 XXX) or 150 micron IS Sieve (*see* IS : 460-1962*) and wash it with a gentle stream of tap water till water passing through the silk does not turn blue when a drop of iodine solution is added to it. Spread the silk tight on a porcelain plate for facilitating scraping. Transfer the residue from the silk by means of a spatula, to a tared procelain or silica dish. Spread the wet gluten into a thin layer and cut into small pieces. Transfer any residue sticking to the spatula into the dish. Place the dish in an air-oven maintained at 130 to 133°C. Dry for 2 hours, cool in a desiccator and weigh.

D-2. CALCULATION

D-2.1 Gulten (on dry basis), percent by mass $= \frac{10\,000(M_2 - M_1)}{M(100 - M_3)}$

where

M_2 = mass in g of the dish with dry gluten;

M_1 = mass in g of the empty dish;

M = mass in g of the material taken for the test; and

M_3 = percentage of the moisture in the sample (*see* **A-2.1**).

APPENDIX E

[*Table* 1, *Item* (v)]

DETERMINATION OF ALCOHOLIC ACIDITY

E-1. REAGENTS

E-1.1 Neutral Ethyl Alcohol — 90 percent (*v/v*).

*Specification for test sieves (*revised*).

E-1.2 Standard Sodium Hydroxide Solution — approximately 0·05 N.

E-1.3 Phenolphthalein Indicator Solution — Dilute 0·1 g of phenolphthalein in 100 ml of 60 percent (*v/v*) rectified spirit.

E-2. PROCEDURE

E-2.1 Weigh 5 g of sample into a conical stoppered flask and add 50 ml of neutral ethyl alcohol. Stopper, shake and allow to stand for 24 hours, with occasional shaking. Filter the alcoholic extract through a dry filter paper. Titrate the combined alcoholic extract against 0·05 N standard sodium hydroxide solution using phenolphthalein as indicator. Calculate the percentage of alcoholic acidity as sulphuric acid.

E-3. CALCULATION

E-3.1 Alcoholic acidity (as H_2SO_4) in 90 percent alcohol, percent by mass $= \frac{24{\cdot}52\ AN}{M}$

where

A = volume in ml of standard sodium hydroxide solution used in titration;

N = normality of standard sodium hydroxide solution; and

M = mass in g of the material taken for the test.

APPENDIX F

[*Table* 1, *Item* (vi)]

DETERMINATION OF GRANULARITY

F-1. PROCEDURE

F-1.1 Transfer about 10 g of the material to a hand silk sieve with an aperture width of 0·18 mm (No. 9 XXX) or 180 micron IS Sieve (*see* IS : 460-1962*), and sieve for 2 minutes. Brush the upper surface of the sieve and sieve again for 1 minute. The material shall be deemed to have satisfied the requirement of the test, if no residue is left on the sieve.

*Specification for test sieves (*revised*).

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